

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

200233  
435 Guiping Road, Shanghai, P. R. China

SHANGHAI PATENT & TRADEMARK  
AGENCY

## PCT

**WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY**

(PCT Rule 43 *bis*.1)

Date of mailing

(day/month/year) **26 OCT 2006 (2 6 - 1 0 - 2 0 0 6)**

Applicant's or agent's file reference

059805 PC

**FOR FURTHER ACTION**

see paragraph 2 below

International application No.

PCT/CN2005/002366

International filing date (day/month/year)

29.Dec.2005 (29.12.2005)

Priority date (day/month/year)

NONE

International Patent Classification (IPC) or both national classification and IPC

G06F 12/10(2006.01)i

Applicant

INTEL CORPORATION et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CN

The State Intellectual Property Office, the  
P.R.China 6 Xitucheng Rd., Jimen Bridge,  
Haidian District, Beijing, China 100088  
Facsimile No. 86-10-62019451

Date of completion of this opinion

8.Sep 2006 (08.09.2006)

Authorized officer

QI, Ji

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/CN2005/002366

**Box No. I Basis of the opinion**

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

- a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
- b. format of material  
☐ on paper  
☐ in electronic form
- c. time of filing/furnishing  
☐ contained in the international application as filed  
☐ filed together with the international application in electronic form  
☐ furnished subsequently to this Authority for the purposes of search

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CN2005/002366

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement:

Novelty (N)	Claims	1-23	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-23	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-23	YES
	Claims	NONE	NO

2. Citations and explanations

The following documents are referred to in this opinion:

D1: US, B1, 6854046 D2: US, A, 5581722 D3: US, B1, 6446187 D4: US, A, 5574877

D1 discloses a configurable memory management unit(MMU). The MMU can be configured to support hardware TLB refill. It includes data TLB(DTLB) and instruction TLB(ITLB).

D2 discloses a memory management unit for managing address operations corresponding to domains using environmental control. It includes a translator. The translator includes a TLB and a translation table look-up logic.

D3 discloses a virtual address bypassing using logic page mask. In the described system, the TLB includes a content addressable memory and a random access memory.

D4 discloses a TLB with two physical pages per virtual tag. The TLB has at least two page frame numbers associated with each tag(Virtual Page Number).

It can be understood that neither of D1-D4 discloses said virtual Translation Lookaside Buffer in claim 1, Therefore claim 1 can be considered as involving the novelty (PCT Article 33(2)).

Therefore claims 2-23 can be considered as involving the novelty (PCT Article 33(2)).

Claim 1 is not obvious to a person skilled on the basis of D1, or D2, or D3, or D4. The corporation of two documents or more in D1-D4 doesn't disclose said virtual Translation Lookaside Buffer in claim 1, either. Therefore claim 1 can be considered as involving the inventive step (PCT Article 33(3)).

Therefore claims 2-23 can be considered as involving the inventive step (PCT Article 33(3)).

The inventions in claims 1-23 can be made or used in industry, they can be considered as involving the industrial applicability(PCT33 Article (4)).